NEW TREE SPECIES FROM ESMERALDAS, ECUADOR (CONTINUED)

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Five new tree species from the Province of Esmeraldas in northwestern Ecuador are published here in the following genera (and families): Talauma Juss. (Magnoliaceae), Macrolobium Schreb. (Leguminosae, Caesalpinioideae), Zanthoxylum L. (Rutaceae), Freziera Sw. ex Willd. (Theaceae), and Clusia L. (Guttiferae). Also, a new name is published in Cassia L. (Leguminosae) for a tree species planted at Quito (Province of Pichincha).

This article is a continuation of articles with the same title (Phytologia 18: 195-208, 404-418, illus. 1969), the third in a series. Each description is accompanied by a line drawing prepared for a book on the common trees of Esmeraldas, now in press. The work was done under the forestry project, Desarrollo Forestal de Noroccidente (DEFORNO). This was United Nations Special Fund Project No. 127, administered by the Food and Agriculture Organization (FAO) of the United Nations and the Government of Ecuador.

TALAUMA DIXONII Little, sp. nov. "Cucharillo." Fig. 11.

Arbor magna sempervirens ad 38 m. alta, trunco 70 cm. diametro, anteridibus humilibus angustis. Cortex fere laevis lenticellis multis verrucosis et lineis multis horizontalibus, griseo-roseus; cortex interior flavescens condimenti sapore amaro. Ramuli crassi glabri, virescentes, demum atrovirentes, nodis multis annulatis. Stipula perlonga, gemmam longam anguste cylindricam 6-10 cm. longitudine obducens, ad petiolum partim adnata, caduca, cicatricem supra formans. Foliorum alternorum petioli 1-4 cm. longi, complanati supra, parum alati, glabrati. Laminae ellipticae, 9-19 cm. longae, 4-9 cm. latae, coriaceae, glabrae, apice et basi rotundatae, margine integra, leviter inflexae et 8-13 nervis parum curvis atque impressis costae lateralibus utroque, supra atrovirentes nitidae, subtus virescentes nitidulae.

Flores terminales solitarii permagni albi fragrantes, erecti pedunculo crasso accrescenti annulis multis. Alabastrum ovoideum, flavidum, 5-6 cm. longum, 3.5-4.5 cm. diametro, bractea spathacea atro-brunnea puberula intus albida secus lineam unicum findente obtectum, caducum. Sepala 3, 8-10 cm. longa, 4-5 cm. lata, albida demum brunnea, crassa concava extus puberula. Petala 6, obovata, 10-11 cm. longa, 4-6 cm. lata, alba, obtusa crassa carnosa. Stamina numerosa congesta 16 mm. longa angusta albida. Gynoecium ellipsoideum, 3 cm. longum, 2.3 cm. diametro, carpellis multis aggregatis angustis 16 mm. longis, 2 mm. latis, stylis albidis.

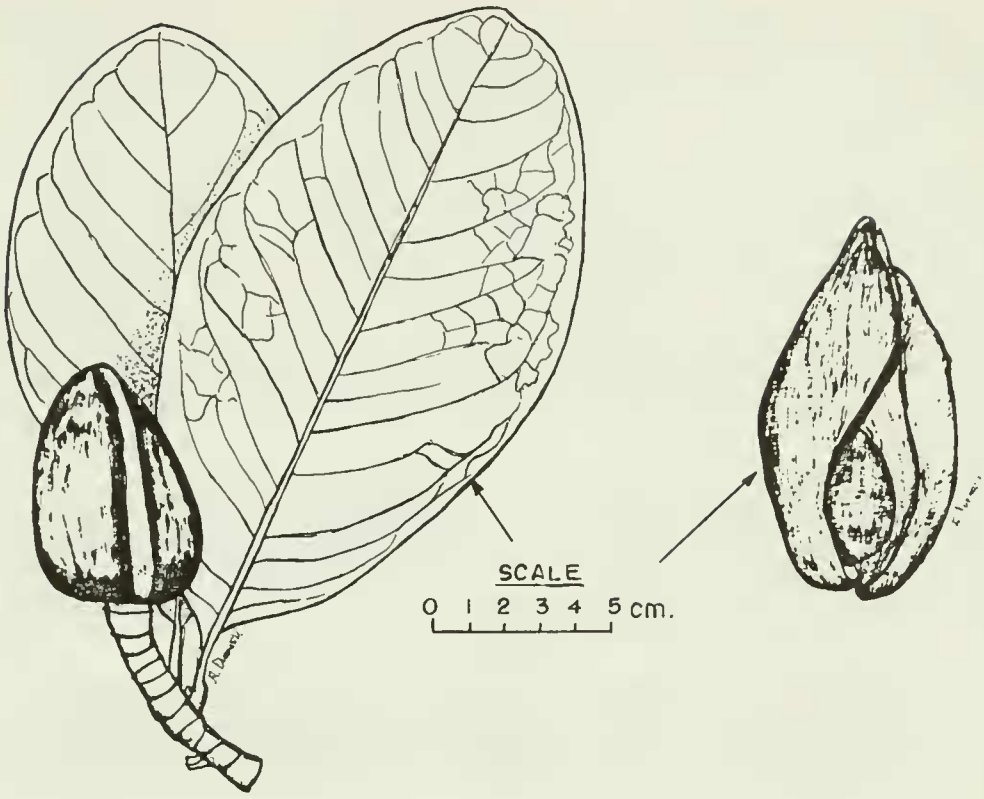
Fructus pedunculo longo pendens, aggregatus, permagnus, obovoideus vel ellipsoideus, 13-14 cm. longus, 11 cm. diametro, atro-brunneus carpellis multis concretis formatus, fere laevis carpellorum lineis multis et stylorum acuminibus multis signatus, lignosus pergravis (0.7-0.8 kilo), circumscissilis, pariete crasso (2.5 cm.) ex basi irregulariter disrumpens. Semina multa, 2 cm. longa, 9 mm. diametro, angulata rubra, 1 vel 2 in loculo, in filo albo ex loculis multis axis lignosi ellipsoidei acuti 6-13 cm. longi suspensi.

Large evergreen tree to 38 m. high, with trunk 70 cm. in diameter, with low narrow buttresses. Bark smoothish with many warty lenticels and many horizontal lines, pink gray; inner bark light yellow, with bitter taste of spice. Twigs stout, glabrous, light green, afterwards dark green, with many ringed nodes. Petioles of the alternate leaves 1-4 cm. long, flattened above and slightly winged, glabrate. Stipule very long, covering long narrowly cylindric bud 6-10 cm. long, partly adnate to petiole, caducous, forming a scar on upper surface. Blades elliptic, 9-19 cm. long, 4-9 cm. wide, coriaceous, glabrous, rounded at both apex and base, with entire margin, slightly inflexed on both sides of midrib, with 8-13 slightly curved and slightly impressed lateral nerves on each side, upper surface shiny dark green, and lower surface slightly shiny light green.

Flowers terminal, solitary, very large, white fragrant, erect on stout enlarged peduncle with many rings. Flower bud ovoid, light yellow, 5-6 cm. long, 3.5-4.5 cm. in diameter, covered by a dark brown finely hairy spathaceous bract whitish inside, that splits open on one side, shedding early. Sepals 3, 8-10 cm. long, 4-5 cm. wide, whitish turning brown, thick, concave, puberulent on outside. Petals 6, obovate, 10-11 cm. long, 4-6 cm. wide, white, obtuse, thick, fleshy, concave. Stamens numerous, crowded, 16 mm. long, narrow, whitish. Gynoecium ellipsoidal, 3 cm. long, 2.3 cm. in diameter, with many crowded narrow carpels 16 mm. long and 2 mm. wide, with whitish styles.

Fruit pendulous on long peduncle, aggregate, very large, obovoid or ellipsoidal, 13-14 cm. long, 11 cm. in diameter, dark brown, formed by many concrescent carpels, smoothish with many lines of the carpels and many points of styles, woody, very heavy (0.7-0.8 kilo), circumscissile, with thick wall 2.5 cm. thick, breaking off irregularly from base. Seeds many, 2 cm. long, 9 mm. in diameter, 1 or 2 in a locule, angled, red, suspended on white thread from many locules of ellipsoidal acute woody axis 6-13 cm. long. Collected with flower buds, few flowers, and fruits in September.

Wood attractive, the sapwood whitish and heartwood olive green. It is used for lumber and dugout canoes.



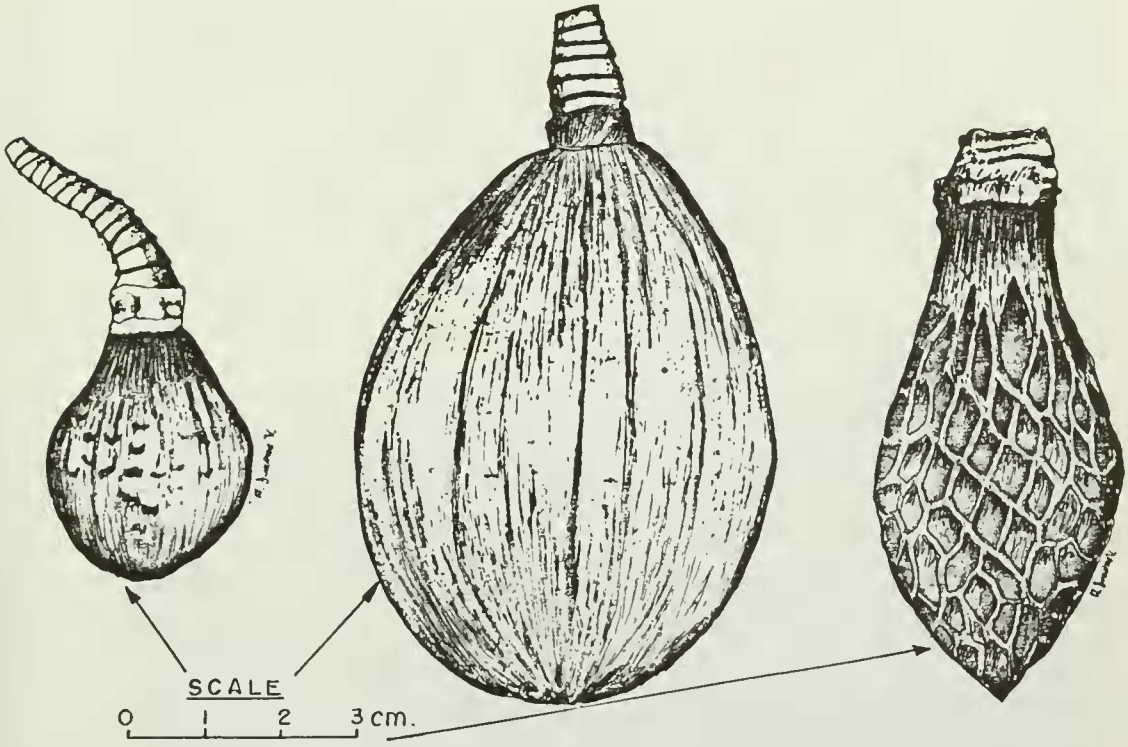


Fig. 11. Talauma dixonii Little, sp. nov. "Cucharillo."

ECUADOR, ESMERALDAS: Near junction of Río Hoja Blanca and Río Hualpi, alt. 75 m., wet tropical forest, Sept. 15, 1965, E. L. Little, Jr., and R. G. Dixon 21066 (HOLOTYPE, US; isotype, NY).

The type tree of this new species was discovered by Robert G. Dixon, silviculturist with the forestry project in Esmeraldas, and myself while following a forest survey line. This giant of the canopy was conspicuous with its large ball-like fruits hanging from the high branches. When cut with axes, it fell against another tree. That also was cut, and the crown finally came to the earth. While a section of the trunk was being removed for wood samples and testing, I collected herbarium specimens. It was a surprise to recognize the flower buds as a magnolia.

The notes and measurements are from fresh specimens. Fig. 11 shows at upper left a twig with 2 leaves and flower bud, upper right old partly dried flower, lower left immature fruit, lower center mature fruit, and at lower right the axis of fruit after outer wall and seeds have been shed.

This new species probably is the first representative of the Magnoliaceae noted in Ecuador. A second species found afterwards in Esmeraldas has been named Magnolia striatifolia Little (Phytologia 18: 198, fig. 2. 1969).

The genus Talauma Juss. contains about 40 species mostly in tropical and subtropical Asia, also in tropical America from southern Mexico and West Indies to eastern Brazil, according to J. E. Dandy (in J. Hutchinson, Gen. Fl. Plants 1: 55. 1964). This new Ecuadoran species is related to Talauma ovata St.-Hill. of Brazil, which has ovate leaves, similar ball-like fruits of concrescent carpels, and thick wall breaking off irregularly from base. Perhaps these species merit recognition as a segregate genus.

MACROLOBIUM INAEQUALE Little, sp. nov. "Nato de río." Fig. 12.

Sect. Stenosolen Harms. Arbor magna sempervirens ad 23 m. alta, trunco 40 cm. diametro. Cortex laevis, bruneus; cortex interior pallido-brunneus. Ramuli grisei glabri lenticellis elevatis punctorum similibus. Folia alterna, paripinnata, 2—jugata, 12-16 cm. longa, petiolo breve puberulo, basi dilatato, 0.5-1 cm. longo, axe breve 1.5-2 cm. longo puberulo longitudinaliter sulcato, petiolulis brevibus dilatatis 2-3 cm. longis. Laminae ellipticae, asymmetricae, pari inferiore parvo 3-5 cm. longo, 1.5-3 cm. lato, pari superiore triplo magno, 10-15 cm. longo, 4-7 cm. lato, papyraceae, glabratae, apice acutae, basi inaequales rotundataeque vel acutae, margine parum revolutae, costa leviter curva, nervis lateralibus utroque latere 6-16 impressis, versus marginem connatis, supra nitido-virides, subtus pallido-virides nervis lateralibus tenuibus prominentibus.

Fig. 12. Macrolobium inaequale Little, sp. nov. "Nato de río."

Inflorescentia racemosa 6-10 cm. longa, ad nodos infra folia lateralis, floribus multis pedicellis brevibus 0.5-1 cm. longis. Flores 15 mm. longi, hypanthio anguste tubulari 6 mm. longo, 2 mm. lato. Sepala 4 oblonga 10-11 mm. longa, subaequalia. Petalum 1 rotundatum parum unguiculatum fimbriatum. Stamina 3, 8 mm. longa, staminodia 2, 3 mm. longa. Pistillum stipite ad parietum hypanthii prope apicem affixo, ovario complanato glabro 1-loculare, 4 ovulis, stylo filiforme curvo, et stigmate capitati. Fructi non visi.

Large evergreen tree to 23 m. high and 40 cm. in trunk diameter. Bark smooth, brown; inner bark light brown. Twigs gray, glabrous with raised dotlike lenticels. Leaves alternate, paripinnate, 2-paired, 12-16 cm. long, with short petiole 0.5-1 cm. long, puberulent, enlarged at base and short axis 1.5-2 cm. long, puberulent, longitudinally grooved above, and with short enlarged petiolules 2-3 mm. long. Leaf blades elliptic, asymmetric, the lower pair small, 3-5 cm. long, 1.5-3 cm. wide, the upper pair 3 times as large, 10-15 cm. long, 4-7 cm. wide, papyraceous, glabrate, acute at apex, unequal and rounded or acute at base, margin slightly revolute, with midrib slightly curved, with 6-16 lateral nerves on each side impressed and connate toward margin, upper surface shiny green, and lower surface light green with fine prominent lateral nerves.

Inflorescence racemose, 6-10 cm. long, lateral at nodes below leaves, with many flowers on short pedicels 0.5-1 cm. long. Flowers 15 mm. long, with narrowly tubular hypanthium 6 mm. long and 2 mm. wide. Sepals 4 oblong, 10-11 mm. long, subequal. Petal 1 rounded, slightly clawed, fringed. Stamens 3, 8 mm. long, and staminodia 2, 3 mm. long. Pistil with stipe attached to wall of hypanthium near apex, flattened 1-celled ovary, 4 ovules, threadlike curved style, and capitate stigma. Collected with flowers in July.

Wood very hard, heavy, with light brown sapwood and dark brown streaked heartwood.

ECUADOR, ESMERALDAS: Río Pambil Estero, alt. 20 m., common along river banks with inundation, wet forest, July 9, 1966, C. Jativa 312 (1091) (HOLOTYPE, US; isotypes LA, NY; wood sample, MADw).

The genus Macrolobium Schreb. is represented by more than 50 species in tropical America from Costa Rica and Panama south to Peru and Brazil. The thorough monograph by Richard S. Cowan (A taxonomic revision of the genus Macrolobium (Leguminosae—Caesalpinioideae). N. Y. Bot. Gard. Mem. 8: 257-342, illus. 1953) accepted 48 species, and several others have been named since. This new species from Esmeraldas is distinguished by 2 very unequal pairs of leaflets, the upper pair 3 times as large as the lower pair.

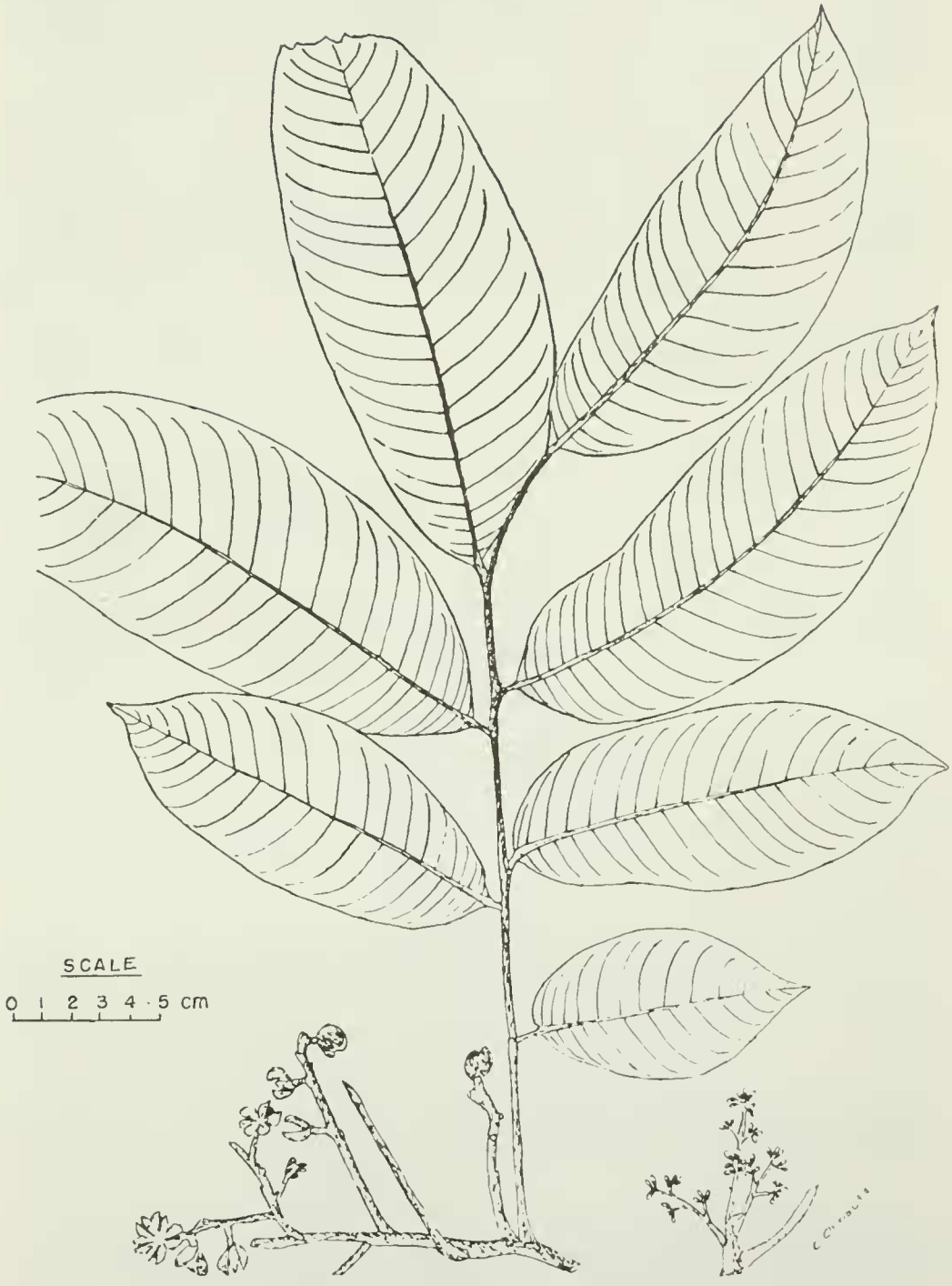


Fig. 13. Zanthoxylum tachuelo Little, sp. nov. "Tachuelo."

An unnamed fruiting specimen (J. Cuatrecasas 17569; Colombia, Depto. del Valle, Costa del Pacífico: Río Cajambre, alt. 5-80 m., May 5-15, 1944; US) is closely related or possibly a variation of the same species. That specimen has 1 pair of much larger leaflets 20 cm. long and 9 cm. wide and apparently scars of a lower, smaller pair. The large flat brown pods are about 20 cm. long and 7 cm. wide and become much curved and twisted in opening. Seeds few, rounded, very flat, brown, 4-4.5 cm. in diameter.

Another species, Macrolobium stenosiphon Harms, "chípero dormilón" or "dormilón," is common along river banks at low altitudes in Esmeraldas. Named from Colombia, it was collected in Ecuador by the forest survey in 1943 and again in 1965. That distinct species with leaves 20—30-jugate was segregated in a monotypic genus as Pseudovouapa stenosiphon (Harms) Britton & Killip.

ZANTHOXYLUM TACHUELO Little, sp. nov. "Tachuelo," "azafrán." Fig. 13.

Subgen. Fagara (L.) Triana & Planch. Arbor magna sempervirens ad 30 m. alta, trunco 40 cm. diametro, anteridibus humilibus rotundatis, saepe spinis validis brevibus in trunco et ramibus. Cortex cineraceus fere laevis multis verrucis parvis et saepe spinis; cortex interior flavido- et aurantiaco-vittatus, amarus. Ramuli crassi, viridi-grisei punctis pallidis, ramuli atque folia obtrita Citri odore atque sapore valido praediti. Folia alterna magna, pinnata, 40-60 cm. longa, glabrata, petiolo tereti crasso 5-7 cm. longo, 3-5 mm. diametro, axe crasso pallido-viride 20-35 cm. longo, supra longitudinaliter sulcato, foliolis 8-13 oppositis vel alternis petiolulis 5 mm. longis. Laminae ellipticae, 6-20 cm. longae, 3.5-8.5 cm. latae, papyraceae, apice acuminatae vel acutae, basi rotundatae atque inaequales, margine integrae, inaequilaterales, punctis translucidis, supra atrovirentes nervis lateralibus multis impressis, subtus obscure pallido-virides.

Dioecia. Inflorescentiae femineae paniculatae laterales axillares, 4-8 cm. longae, ramis crassis puberulis, multis floribus unisexualibus minutis 3 mm. longis pallido-viridibus. Flores feminei 5 sepalis 1 mm. longis, 5 petalis 2 mm. longis, glandulo-punctatis, disco, pistilloque 1 mm. longo, ovario rotundato 5-loculare et stigmate complanato. Capsulae depresso-globosae 11 mm. longae, 15 mm. diametro, nigricantes, 5-loculares, secus nervas 5 dehiscentes. Semina 5, ellipsoidalia, 7 mm. longa, nitido-nigricantes.

Large evergreen tree to 30 m. high and 40 cm. in trunk diameter, with low rounded buttresses, often with short stout sharp spines on trunk and branches. Bark light gray, nearly smooth, with many small warts and often spines; inner bark light yellow

and orange streaked, bitter. Twigs stout, greenish gray, with light dots, twigs and crushed leaves with strong taste and odor of Citrus. Leaves alternate, large, pinnate, 40-60 cm. long, glabrate, with terete stout petiole 5-7 cm. long, 3-5 mm. in diameter, stout pale green axis 20-35 cm. long, longitudinally grooved above and 8-13 leaflets opposite or alternate with petiolules 5 mm. long. Blades elliptic, 6-20 cm. long, 3.5-8.5 cm. broad, papyraceous, glabrate, acuminate or acute at apex, rounded and unequal at base, with entire margin, sides unequal, with translucent dots, upper surface shiny dark green with many impressed lateral nerves, lower surface dull light green.

Dioecious. Female inflorescences paniculate, lateral, axillary, 4-8 cm. long, with stout puberulent branches and with many minute light green unisexual flowers 3 mm. long. Female flowers with 5 sepals 1 mm. long, 5 gland-dotted petals 2 mm. long, disk, and pistil 1 mm. long with rounded 5-celled ovary and flattened stigma. Capsules depressed globose, 11 mm. long, 15 mm. in diameter, blackish, 5-celled, opening along 5 lines. Seeds 5, ellipsoidal, 7 mm. long, shiny blackish. Collected with flowers and fruits in October and with fruits in July.

Wood hard, of good quality, with thick light yellow sapwood and light brown heartwood.

ECUADOR, ESMERALDAS: Río Guayllabamba near Quinindé, alt. 130 m., wet forest, Oct. 4, 1965, E. L. Little, Jr., and R. G. Dixon 21222 (HOLOTYPE, US; isotype, NY). Río Pambil, alt. 25 m., secondary forest, common, July 7, 1966, C. Játiva 307 (1081) (US, LA).

The large genus Zanthoxylum L. sens. lat. (including Fagara L.) contains more than 270 species in tropical, subtropical, and warm temperate regions of the world. Reasons for uniting Fagara as a subgenus have been stated by G. K. Brizicky (Arnold Arboretum Jour. 43: 6-9, 80-83. 1962) and others.

This new species was not represented in the large collections at the U. S. National Herbarium. It may be related to Zanthoxylum sprucei Engl. of Peru. Another species, Z. rhoifolium Lam., known also as "tachuelo," was collected at San Lorenzo, Esmeraldas, by the forest survey in 1943.

The specific ephithet is taken from the common name of this and other species of the same genus in Esmeraldas. The common name from Spanish "tachuela," tack, describes the many stout spines on trunk and branches.

Figure 13 by Carlos Chiriboga shows a portion of a twig with a leaf and fruits, also at lower right a female inflorescence.

FREZIERA ESMERALDANA Little, sp. nov. Fig. 14.

Arbor magna sempervirens ad 35 m. alta, trunco 60 cm. diametro, anteridibus humilibus angustis. Cortex fere laevis brunneus lenticellis verrucosis; cortex interior roseo-vittatus, sapore arenoso et modice amaro. Ramuli longi, juventute virides puberuli, demum atro-brunnei multis lenticellis puntis pallidis. Gemma nuda foliorum juvenium plicatorum sericeorum composita. Folia alterna biserialia, petiolis brevibus crassis viridibus 1 cm. longis, longitudinaliter sulcatis. Laminae anguste ellipticae, 10-15 cm. longae, 3.5-6 cm. latae, coriaceae, apice et basi acutae, margine serrulatae, punctis translucidis, nervis lateralibus multis parallelis impressis, supra atrovirentes, glabratae, modice nitidae, subtus obscure pallido-virides puberulae; laminae juvenes lineis 2 tenuibus vel plicis utroque costae latere et margine parallelis.

Flores laterales, pauci, fasciculati, fere sessiles foliorum axillis et nodis infra folia, fere 1 cm. lati, viridi-albi. Alabastra rotundata, 5 mm. diametro. Flos bracteolis 2, rotundatis puberulis 1 mm. longis. Sepala 5, imbricata, rotundata viridia 2 mm. longa, puberula, persistentia. Petala 5 imbricata, alba, elliptica, concava, 4 mm. longa. Stamina vel staminodia c. 15, 2-3 mm. longa, filamentis tenuibus et antheris angustis 1 mm. longis. Pistillum ovario rotundato 5-loculare, ovulis paucis, stigmate brevi. Fructus non visus.

Large evergreen tree to 35 m. high and 60 cm. in trunk diameter, with low narrow buttresses. Bark smoothish with warty lenticels, brown; inner bark pink streaked, with gritty, slightly bitter taste. Twigs long, green and puberulent when young, afterwards dark brown with many light dot lenticels. Bud naked, of folded silky young leaves. Leaves alternate in 2 rows, with short stout green petiole 1 cm. long, longitudinally grooved. Blades narrowly elliptic, 10-15 cm. long, 3.5-6 cm. broad, coriaceous, acute at apex and base, finely serrate at margin, with translucent dots, lateral nerves many, parallel, and impressed, upper surface dark green, glabrate, and slightly shiny, and lower surface dull light green and puberulent; young leaves with 2 fine lines or folds on each side of costa parallel with margin.

Flowers lateral, few, fascicled and almost sessile at leaf axils and at nodes below leaves, nearly 1 cm. wide, greenish white. Buds rounded, 5 mm. in diameter. Flower with 2 rounded puberulent bracteoles 1 mm. long. Sepals 5, imbricate, rounded, green, 2 mm. long, puberulent, persistent. Petals 5, imbricate, white, elliptic concave, 4 mm. long. Stamens or staminodia about 15, 2-3 mm. long, with slender filaments and narrow anthers 1 mm. long. Pistil with rounded 5-celled ovary, few ovules, and short stigma. Fruits not seen. Collected with flowers in September.

Fig. 14. Freziera esmeraldana Little, sp. nov.

Wood slightly soft, with whitish thick sapwood and pinkish brown heartwood.

ECUADOR, ESMERALDAS: Alto Tambo, alt. 650 m., lower montane forest, Sept. 22, 1965, E. L. Little, Jr., and R. G. Dixon 21118 (HOLOTYPE, US; isotype, NY; wood sample, MADw).

The genus Freziera Sw. ex Willd. contains about 40 species in mountains of tropical America from Costa Rica to Venezuela, Ecuador, and Bolivia, also Cuba. It was monographed by Clarence E. Kobuski (Studies in the Theaceae, VIII. A synopsis of the genus Freziera. Arnold Arboretum Jour. 22: 457-496. 1941). The new species is related to another Ecuadoran species, F. verrucosa (Hier.) Kobuski, which has long petioles 2-3 cm. long and long pedicels to 10 m. Both, as well as a few others, have prominent raised whitish dot lenticels.

CLUSIA DIXONII Little, sp. nov. "Ducu." Fig. 15.

Arbor parva ad 10 m. alta, trunco 15 cm. diametro. Cortex griseus laevis, latice alba. Ramuli percrassi, teretes, glabri. Folia opposita glabra, petiolis crassis alatis 1-2 cm. longis. Laminae obovatae, magnae, 16-21 cm. longae, 9-13 cm. latae, virides, percrassae et fere succulentae, apice rotundatae, basi acutae, margine revolutae, costa crassa, in vivo sine nervis lateralibus manifestis, in sicco multis nervis lateralibus tenuibus parallelis.

Capsulae 1-2 terminales pedicellis brevibus crassis 1 cm. longis, magnae, ovoideae, 3.5-6 cm. longae, 3-4 cm. diametro, succulentae, multis sulcis longitudinalibus profundis, pariete crasso, apice stigmatibus nigricantibus 8-9 fere 1 cm. latis in circulo sessilibus, 8—9-locularibus, nervis longitudinalibus dehiscentes, basi 4 vel pluribus sepalis rotundatis persistentibus, etiam petalis paucis similaribus. Semina multa, 7 mm. longa, anguste cylindrica. Flores non visi.

Small tree to 10 m. high, with trunk 15 cm. in diameter. Bark gray, smooth, with white latex. Twigs very stout, terete, glabrous. Leaves opposite, glabrous, with stout winged petioles 1-2 cm. long. Blades obovate, large, 16-21 cm. long, 9-13 cm. wide, very thick and almost succulent, rounded at apex, acute at base, with revolute margin, with stout midrib, upper surface green, lower surface light green, in living state without visible lateral nerves, in dried state with many fine parallel lateral nerves.

Capsules terminal, 1-2 on short stout pedicels 1 cm. long, large, ovoid, 3.5-6 cm. long, 3-4 cm. in diameter, succulent, with many deep longitudinal grooves, with thick wall, and at apex 8-9 blackish stigmas nearly 1 cm. wide sessile in a circle, 8—9-celled, opening by longitudinal lines, at base with 4 or

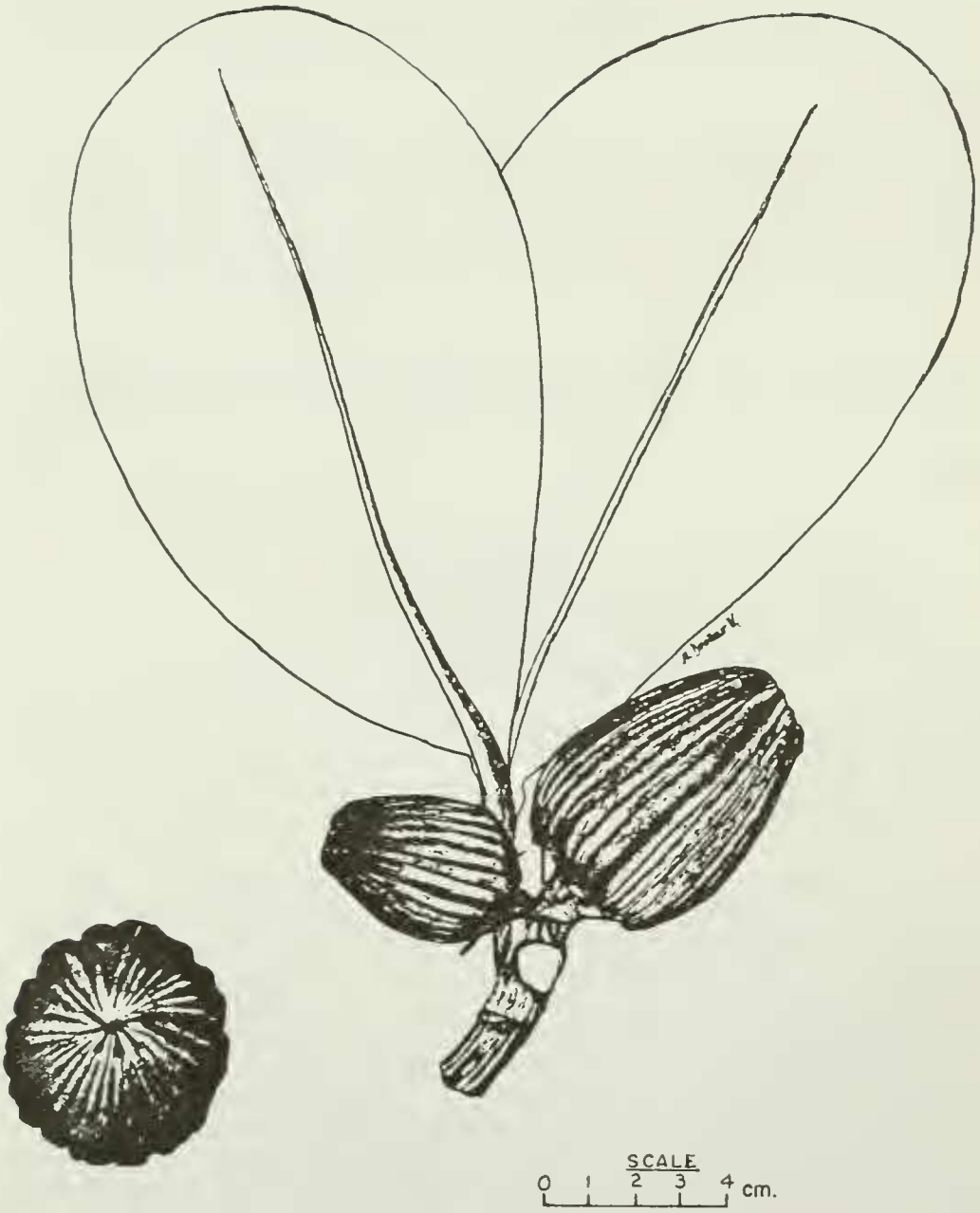


Fig. 15. Clusia dixonii Little, sp. nov. "Ducu."

more rounded persistent sepals 1 cm. long, also a few similar petals. Seeds many, 7 mm. long, narrowly cylindric. Flowers not seen. Collected with fruits in October.

ECUADOR, PICHINCHA: Río Guayllabamba near Gualea Cruz [near boundary of Esmeraldas], alt. 1200 m., lower montane forest, Oct. 23, 1965, R. G. Dixon 263 (HOLOTYPE, US; isotype, NY).

This species has sufficiently distinct large fruits. However, the specimen lacks flowers and cannot be placed in the section without male flowers. Robert G. Dixon, silviculturist with the forestry project in Esmeraldas, collected the type. It was reported that the white latex has served as incense in the churches.

The common name "ducu" has long been applied in the Andes of Ecuador to at least a few species of this genus. Clusia ducu Benth., so named from a collection in Loja, is a very different species with small obovate leaves scarcely 5 cm. long. The common name "duco" was recorded for C. ecuadoriana Steyerm., collected in Azuay and El Oro.

Another species, Clusia polystigma Little (Wash. Acad. Sci. Jour. 38: 104, fig. 15. 1948), was named from a collection from San Lorenzo by the forest survey of 1943.

CASSIA VIARUM Little, nom. nov. "Botón de oro." Fig. 16.

Chamaesenna velutina Britton & Killip, N. Y. Acad. Sci. Ann. (Mimos. Caesalp. Colombia) 35: 179, t. 2. 1936. Non Cassia velutina Vogel, Synops. Gen. Cassiae. Linnaea 11: 670. 1837 (Brazil). Non Peiranisia velutina Britton & Killip, N. Y. Acad. Sci. Ann. 35: 181. 1936 (Colombia).

This small tree of the northern Andes of Ecuador and Colombia needs a new specific epithet in the genus Cassia L. Specimens of all 3 species cited above have been filed together in the same species folder under Cassia at the U. S. National Herbarium.

In my report of the 1943 collection in Ecuador, this species was listed as Chamaesenna velutina Britton & Killip (Not Cassia velutina Vogel) (Little, Caribbean Forester 9: 243. 1948). The Leguminosae of that collection were named by the late Ellsworth P. Killip, of the U. S. National Museum. A specialist on the flora of Colombia, he was invited after the death of J. N. Rose to collaborate with N. L. Britton on the taxonomic treatment of the Mimosaceae and Caesalpiniaceae of Colombia, cited above. Naturally, the earlier nomenclature with many segregate genera was continued. Killip used these generic names for the Ecuador specimens. At the time it seemed best to follow the nomenclature of the Colombian reference, and I refrained from renaming the species. The present trend is to suppress the generic segregates.

Fig. 16. Cassia viarum Little, nom. nov. "Botón de oro."

Chamaesenna Pittier, based upon Cassia sect. Chamaesenna DC., had only about 10 binomials.

The type collection (Killip and Smith 19655; isotype seen at US) was made in 1927 in a plaza at Mutiscua, Norte de Santander, Colombia, 2600 m. The original description contains a photograph of the type tree.

Cassia viarum is a handsome ornamental small tree commonly 6-8 m. high (reported to reach 15 m.) and 10 cm. in trunk diameter, with broad rounded crown of dark green foliage and many bright yellow flowers. It is planted occasionally along roads and streets in Quito and Bogotá. I first collected it in 1943 on the grounds of my hotel in Quito (Little 6113; US). In 1965 I found it on the street in front of my pension and opposite the project office in Quito (Little 21253; US, NY). The U. S. National Herbarium contains 3 other collections from Ecuador, all from the Andes in the Province of Pichincha. The localities were a dry mountainside near Quito, near the village Nono, and between Nono and San Francisco (common name "cholan").

The first collection of this species was made in 1920 at Bogotá, Colombia, by Wilson Popenoe (Popenoe 1144; US), who recorded the local common name "alcaparro." He described this small tree as attractive, broad-topped, 20 feet high, producing bright yellow flowers freely during a large part of the year. It was planted along several streets in a suburb of Bogotá, where it withstood the severe conditions of street planting in that climate. The herbarium sheet bears the pencil name Chamaesenna velutina ined., apparently by J. N. Rose.

Another specimen from Jardín Botánico, Ciudad Universitaria, Bogotá, has the common name "alcaparro de Bogotá." One collection is from Sabana de Bogotá. This tree was collected also from a roadside, probably cultivated or escaped, in the disturbed shrub and dwarf forest type southeast of Bogotá (E. L. Little, Jr., and R. R. Little 9221, Jan. 7, 1945; US) and noted as occasionally planted in Bogotá.

The 5 new tree species from Esmeraldas, Ecuador, described and illustrated above are: Talauma dixonii (fig. 11), Macrolobium inaequale (fig. 12), Zanthoxylum tachuelo (fig. 13), Freziera esmeraldana (fig. 14), and Clusia dixonii (fig. 15). Also published is a new name, Cassia viarum (fig. 16).

(To be continued.)

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